PB90-157835

Superfund Record of Decision (EPA Region 5)
Adrian Municipal Well Field, MN
(First Remedial Action), September 1989

(U.S.) Environmental Protection Agency, Washington, DC

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EPA

Superfund Record of Decision:

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16. Abstract (Limit: 200 words)

The Adrian Municipal Well Field site is in Adrian, Nobles County, Minnesota, a city which relies solely on ground water for its municipal water supply. In 1983 the State detected VOC contamination in two of the six wells at the site, and by 1985 the city had replaced the VOC-contaminated wells with two new wells. Subsequent ground water sampling indicated that petroleum releases from underground storage tanks (UST) are sources for soil and ground water contamination. Although ground water contaminant concentrations exceed Federal and State drinking water and surface water standards, no further action will be taken by the Superfund program because the program does not have the authority to address clean up of petroleum releases. EPA will, however, formally transfer the site to its UST program in October 1989 for further action. There are no costs associated with this remedial action.

17. Document Analysis a. Descriptors

Record of Decision - Adrian Municipal Well Field, MN
First Remedial Action - Final
Contaminated Media: soil, gw
Key Contaminants: petroleum wastes including benzene, xylenes, and lead

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report) None	21. No. of Pages 38
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RECORD OF DECISION DECLARATION

SITE NAME AND LOCATION

Adrian Municipal Well Field
Adrian, Nobles County, Minnesota

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Adrian Municipal Well Field Site in Adrian, Minnesota, developed in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), the Minnesota Environmental Response and Liability Act of 1983 (MERLA) and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300).

This decision is based on the administrative record upon which the selection of the remedial action is based. The index of the administrative record is attached.

The State of Minnesota and the U.S. Environmental Protection Agency (U.S. EPA) each and independently, concur and adopt the selected remedy.

DESCRIPTION OF SELECTED REMEDY: NO ACTION

The results of the Remedial Investigation (RI) show that contaminants of concern at the Site are excluded from remedial action under MERLA and CERCLA Section 101. Specifically, the Superfund program does not have the authority to address cleanup of petroleum releases from underground storage tanks (UST). The selected remedy is that "no further action" be taken by the Minnesota Pollution Control Agency (MPCA) Site Response Section and the U.S. EPA Office of Superfund at the Site and that the Site be transferred to the U.S. EPA UST program and the Hazardous Waste Division (Tanks and Spills Section) at the MPCA, which is acting under a cooperative agreement with the U.S. EPA.

DECLARATION STATEMENT

Pursuant to MERLA and Section 101 of CERCLA, as amended by SARA, U.S. EPA and MPCA do not have the authority to address the Site using Superfund Resources. The UST program established in Subtitle I of the Resources Conservation and Recovery Act, as amended by SARA, is the regulatory authority with jurisdiction over cleanup of releases of petroleum from leaking underground storage tanks. The Adrian Municipal Well Field Site has been referred to the UST Program for further action deemed appropriate. Minn. Stat. ch. 115c (1988) provides authority for the state underground storage tank program to deal with the Site. The "no further action" decision does not constitute a finding that the Site is protective of human health and the environment.

for Frank M. Covington

Valdas V. Adamkus
Regional Administrator
U.S. Environmental Protection Agency

9/29/89
Date

Gerald L. Willet

Gerald L. Willet
Commissioner
Minnesota Pollution Control Agency

9/28/89
Date

ADDENDUM

U. S. EPA and MPCA, by this addendum to this declaration, hereby clarify that at the time funds were expended for remedial investigation (RI) activities, there was a release or threat of release of a hazardous substance. Upon completion of the RI, it became clear that the nature of the waste was petroleum. For this reason, the agencies are now transfering authority for further response action to the UST program.

for Frank M. Covington

Valdas V. Adamkus
Regional Administrator
U. S. Environmental Protection Agency

for Ann Thomas

Gerald L. Willet
Commissioner
Minnesota Pollution Control Agency

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RECORD OF DECISION

Summary of Remedial Alternative Selection

Adrian Municipal Well Field
Adrian, Nobles County, Minnesota

I. SITE NAME, LOCATION, AND DESCRIPTION

The city of Adrian (the City) is located in west-central Nobles County in southwestern Minnesota (T102W, R42W, Sections 18 and 19, and T102N, R43W, Sections 13 and 24), Figure 1. Located along the Kanaranzi Creek, the City has a population of approximately 1,336 people (1980 census), with the area of investigation (the Site) encompassing a portion of the north-central part of the City. Adrian relies solely on ground water for its municipal water supply. The City operates six water supply wells (Figure 2), five of which produce from the surficial outwash deposits along Kanaranzi Creek and its tributary outwash channels, and one of which produces from very thin horizontal sand zones in the till.

The municipal water supply services approximately 400 connections with an 82 gallon per capita per day consumption. In September 1983, the Minnesota Department of Health (MDH) reported that City Wells No. 3 and No. 4 contained detectable concentrations of 1,2-dichloroethane (16 parts per billion [ppb] and 3.8 ppb, respectively). The concentration in City Well No. 3 exceeded the human health water quality criterion established by U.S. Environmental Protection Agency (EPA) for 1,2-dichloroethane (9.4 ppb). Subsequent sampling (January 1984) showed both wells contained benzene at concentrations (130 ppb and 160 ppb, respectively) that also exceeded the human health water quality criterion

for benzene (6.6 ppb). Prior to the discovery of the ground water problems, the City used City Wells No. 1, No. 2, No. 3, and No. 4 as their source of drinking water. On January 16, 1984, the MDH issued a health advisory for the City recommending that City Wells No. 3 and No. 4 not be used as a source of drinking water.

City Wells No. 3 and No. 4 are no longer in use and the City replaced these wells with recently constructed (1984-1985) City Wells No. 5 and No. 6. City Wells Nos. 1 and 2 continue to be used as needed. Petroleum-based contaminants have not been detected in City Wells Nos. 1, 2, 5 and 6.

The area of investigation is underlain by a thick glacial deposit composed largely of outwash and till of the Wisconsin glaciation during the Pleistocene Epoch. Bedrock is estimated at 400 to 500 feet below ground surface and consists of thin Cretaceous sedimentary units overlying Precambrian granitic bedrock. The Precambrian granitic bedrock is not known to be a ground water source in Nobles County, and only the sandstones within the Cretaceous units are reported to be adequate as a domestic water supply. The topography/ physiography in the vicinity of the Site is slightly rolling to flat, and dominated by glacial features that were formed during pre-Wisconsin and Wisconsin glaciations. The Bemis and Altamont phases of the Des Moines lobe deposited till across the region. Long, narrow meltwater channels were cut into the till by peri-glacial streams that drained the front of the ice sheet. The channels were subsequently filled with outwash, and are the present day courses of smaller streams. The Site lies along the southern bank of a channel occupied by Kanaranzi Creek.

II. SITE HISTORY AND ENFORCEMENT ACTIVITIES

On September 1, 1983, the MDH reported, as part of a state-wide study of volatile organic compound (VOC) contamination in municipal wells, that ground

water in City Well No. 3 contained 16 ppb of 1,2-dichloroethane. This concentration exceeded the 9.4 ppb human health water quality criterion for 1,2 dichloroethane. In addition, City Well No. 4 contained 3.8 ppb 1,2-dichloroethane. The wells were resampled on October 15, 1983, and the MDH reported concentrations of 11.0 and 2.7 ppb respectively, of 1,2-dichloroethane for samples from City Wells No. 3 and No. 4. Additional samples were collected from the wells on January 5 and 11, 1984. The results of those samples indicated that City Wells No. 3 and No. 4 were contaminated with several VOCs. Concentrations of benzene ranged from 88 ppb to 160 ppb for City Well No. 4, and from 90 ppb to 130 ppb for City Well No. 3. These concentrations exceeded the human health water quality criterion of 6.6 ppb for benzene. Concentrations of 1,2-dichloroethane in the samples ranged from 10 ppb for City Well No. 3 and 15 ppb for City Well No. 4.

Another set of water samples was collected in January 1985. The data showed high concentrations of VOCs in monitoring wells MW-3D, MW-7, MW-8, and MW-8D (see figure 3 for Monitoring Well locations). During March 1985, the Minnesota Pollution Control Agency (MPCA) conducted an inventory of buried gasoline tanks to identify possible sources of the municipal well contamination. All of the tank locations were investigated with flight-auger borings. The results are listed below:

MPCA	NAME	NO. OF TANKS	NO. OF BORINGS	HIGHEST * HNu READING (PPM)	CURRENT ACTIVE	STATUS REMOVED
1	MnDOT Truck Station	3	3	500	1	2
2	Adrian Motel	2	2	0	0	2
3	Champlin Station	3	1	150	3	
4	Adrian Glass & Sign	2	2	70	0	2
6	John's Alignment	2	2	5	0	2

7	Archer's Rebuilders	3	2	550	0	3
8	Adrian Tile					
	(Underground)	1	3	500	0	1
	(Above Ground)	4			0	4
9	Adrian Mini Mart	3	2	50	3	

* The HNu reading is a measure of VOCs present in the soil, like those in gasoline. The reading is generally reported as the equivalent concentration of isobutylene. The higher the reading, the higher the concentration of organic vapors.

HNu readings strongly indicated the presence of what was presumed by investigators to be gasoline at or near the water table in the borings at Adrian Tile Co., the Champlin (now Fina) Gasoline Station, the MnDOT Truck Station, and Archer's Rebuilders. In addition, HNu readings suggested the presence of gasoline in the borings at Adrian Glass & Sign, John's Alignment and the Adrian Mini Mart. The HNu readings from the borings at the Adrian Motel indicated little evidence of gasoline. Many of these tanks have been taken out of service and removed from the ground.

Additional ground water samples were analyzed in October 1987, January 1988, and March 1988. These analyses also showed high concentrations of VOCs in Wells MW-3D, MW-5D, MW-7, MW-8, and MW-8D.

The history of response actions at the Site is provided below in chronological order:

- Samples collected by the MDH on September 1, 1983, indicated that City Well No. 3 contained 1,2-dichloroethane at 16 parts per billion (ppb). That concentration exceeds the 9.4 ppb human health water quality criteria for 1,2-dichloroethane. A trace level of chloroform was detected in City Well No. 2. Peaks were detected for carbon tetrachloride and 1,2-dibromoethane

for City Wells No. 2 and No. 3, respectively. In addition, 1,2-dichloroethane at 3.8 ppb was detected in City Well No. 4.

- MDH confirmation samples collected October 25, 1983, verified levels of 1,2-dichloroethane of 11.0 and 2.7 ppb in City Wells No. 3 and No. 4, respectively.
- Analysis from samples collected on January 5 and 11, 1984, showed that City Wells No. 3 and No. 4 were contaminated above human health water quality criteria with several VOCs including 1,2-dichloroethane and benzene.
- On January 12, 1984, the City discontinued use of City Wells No. 3 and No. 4 and began using City Wells No. 1 and No. 2 for their water supply.
- MDH issued a health advisory for the City on January 16, 1984, recommending that City Wells No. 3 and No. 4 not be used for drinking water.
- On January 16, 1984, MPCA issued a Declaration of Emergency to authorize the use of MERLA funds at the site.
- On January 16, 1984, the MPCA Board authorized the expenditure of funds from the Minnesota Environmental Response, Compensation and Compliance Fund to:
    1. Conduct a remedial investigation to define the release;
    2. Conduct a feasibility study to define the best short-term and long-term alternative water supply; and
    3. Develop a temporary water supply for the City.
- Barr Engineering Company, under contract with the MPCA, completed the Feasibility Study on the Temporary Water Supply, Adrian, Minnesota in March 1984.
- Activated Carbon Filtration was installed and operated for City Wells No. 3 and No. 4 from July through November 1984.
- MPCA conducted a Soil Boring Investigation at Nobles County Garage, MnDOT Truck Station, Adrian, Adrian Glass & Sign, John's Alignment,

Archer's Rebuilders, Adrian Tile, and Adrian Mini-Mart in March and May 1984.

- Barr Engineering Company conducted the Hydrogeologic Remedial Investigation field activities, which included twelve soil boring and six monitoring wells, from May through September 1984.
- The respective landowners removed two inactive underground gasoline tanks from Adrian Glass & Sign; two inactive underground tanks from Adrian Auto; and two tanks from the Adrian Motel by September 28, 1984.
- The Hydrogeologic Remedial Investigation Report was completed by Barr Engineering Company in October 1984.
- Barr Engineering Company completed a Hydrogeologic Remedial Investigation Supplement (installation of five monitoring wells) in January 1985.
- One inactive underground gasoline tank was removed from Adrian Tile on August 20, 1985.
- The Hydrogeologic Remedial Investigation Supplemental Report was completed by Barr Engineering Company in November 1985.
- Using federal Small Cities Development Grants, the City installed City Well No. 5 in November 1984, and City Well No. 6 in October 1985.
- IT Corporation (IT) was retained by the MPCA to prepare a Work Plan for a more detailed remedial investigation in early 1986.
- IT conducted the field investigation described in their Work Plan between September 1987 and April 1988.
- Malcolm Pirnie, Inc. was retained by the MPCA in July 1988 to complete a Remedial Investigation Report based on the data from the previous investigations.
- June 1989 - Final RI approved by MPCA and EPA.

III. COMMUNITY RELATIONS

Public interest in the Superfund activities at the Site has been limited. To date, there have been public meetings, fact sheets, and press releases regarding the activities at the Site. There is an active mailing list of local citizens interested in the activities at the Site. A public information repository has been established at the Adrian Public Library. A Proposed Plan (attached) was prepared stating MPCA's and EPA's recommendation for transfer of the Site from the Superfund Programs to the Federal and State Underground Storage Tanks (UST) Programs. A chronology of past community relations activities at the Site is listed in the Responsiveness Summary attached.

A public comment period on transferring the Site began on July 26, 1989, and ended on August 25, 1989. The MPCA published a notice in the July 26th edition of the Nobles County Review, a weekly newspaper published in Adrian, and also provided a news release to the nearest daily newspaper, the Worthington Globe. The notice and news release included information on the availability of the Remedial Investigation Report and Proposed Plan at the Adrian Library, the dates of the public comment period, and a brief description of the Proposed Plan. In addition, the MPCA mailed copies of the Proposed Plan to local officials, state legislators, and tank owners and operators.

One comment was received during the public comment period. The attached responsiveness summary details the comment received and the MPCA's response.

IV. SCOPE OF RESPONSE ACTION

This declaration of "No Further Action" represents the final action at the Site under the Federal and State Offices of Superfund. After the Site is transferred to the Federal UST program, the MPCA's UST program will develop and implement remedial actions, as is appropriate for sites with only petroleum contamination.

V. SITE CHARACTERISTICS

During the 1988 RI activities conducted by IT Corporation, three rounds of ground water sampling were conducted to determine the nature and extent of contamination at the Site. The first round included analyses for VOCs of all samples, and analyses for semi-volatile organic compounds (SVs), pesticide/PCB, and inorganics on selected samples. After the well installation program was complete, all of the wells were sampled for VOCs, and selected wells for SVs and inorganics. A third sampling round included only the newly installed wells, and served as a confirmation round on VOCs for those wells that had only been sampled once up to that time.

The data indicate one major source and one potentially minor source for the contaminants. These sources are associated with current or former underground storage tank locations and are shown in Figure 3. Tank Location 3N (Figure 3) contains tanks currently in service at a gasoline service station. Based on the results of the Soil Organic Vapor (SOV) Survey, analyses of subsurface soil samples and ground water monitoring (Well MW-7R), the area occupied by this source is estimated to be about 40 feet by 100 feet, and includes about 1,500 cubic yards of soil.

A potentially minor source has been identified at Tank Location 4 (Figure 3). This tank has been removed, but the SOV Survey and analyses of subsurface soil samples have identified residual contamination in the soil. However, this location is about 100 feet further from the bank of the channel aquifer than is Tank Location 3, and the migration of contaminants through the glacial till highland over that distance is doubtful. Consequently, the status of Tank Location 4 as contributor to the contaminant plume in the aquifer is uncertain.

A. Ground Water and Surface Water

Ground water at the Site is contaminated with organic compounds and lead. The compounds found at high concentrations and/or widespread occurrence are benzene, toluene, total xylenes, ethylbenzene, 1,2-dichoroethane, 1,2-dibromoethane, naphthalene, 2-methylnaphthalene, and lead. This cluster of compounds indicated that the primary source of contamination is petroleum products, principally gasoline and possibly fuel oil. Other organic compounds were found at relatively low concentrations, and in some cases were not found consistently throughout the sampling program.

The contaminant plume is found in a surficial meltwater channel aquifer. This is the principal aquifer in the region for large capacity water sources such as the municipal system, and no reliable alternative sources are known. The aquifer generally consists of a zone of shallow, silty sand overlying a basal unit of coarse sand and gravel. Five of the City's six municipal water supply wells are completed in the channel aquifer, and four are screened in the basal unit. The maximum depth of the base of the channel aquifer is estimated to be 40 feet, and the thickness of the basal unit supplying the municipal wells is approximately 5 to 10 feet. The water table is found at depths ranging from about 5 to 20 feet, depending upon surface elevation.

The contaminant plume is found along the southern bank of the channel (Figures 4 and 5). It is found in both the shallow sand unit (Zone I) and in the basal unit (Zone II). The highest concentrations are found at well MW-8, where the maximum concentrations of the most prevalent compounds were found to be:

Contaminant	Concentration
- benzene	33,000 ug/l
- toluene	50,000 ug/l
- total xylenes	20,000 ug/l
- ethylbenzene	2,400 ug/l
- 1,2-dichloroethane	1,400 ug/l
- 1,2-dibromoethane	700 ug/l
- naphthalene	640 ug/l
- lead	525 ug/l

The plume attains its greatest areal extent in the basal unit (Plume Zone II, Figures 4 and 5). The actual areal extent of the plume in the western part of the Site is uncertain, since the plume extends beyond the monitoring well network in the basal unit. A conceptual plume shape, based on aquifer hydraulics and source concentrations, is shown in this portion of Figure 4. Actual field conditions may differ. As depicted in Figure 4, the plume contains about two to six million gallons of contaminated ground water.

Ground water flows generally in a north, northwesterly direction, although it is apparent from the ground water contour maps that the direction of flow varies somewhat with changes in seasonal recharge conditions. Ground water velocities also vary with changing conditions, although generally water moves through the shallow sands and basal unit at a rate of flow less than 1 foot/day. While water continues to move through the plume at this rate, the plume appears to be relatively immobile. This apparent immobility may be due to various degradation processes, including biodegradation at the edges of the plume keeping pace with flow, resulting in a nearly stationary plume.

Kanaranzi Creek is the major surface water body in the area, and runs along the northern part of the study area. Analytical data collected during base flow periods when ground water discharges to the creek indicates that the contaminant plume is not discharging to Kanaranzi Creek at measurable concentrations.

B. Soil

Five geologic cross sections were constructed through the Site. The Site lies on the southern flank of a glacial meltwater channel incised into Des Moines lobe till. Channel sediments consist of a basal unit of coarse sand and gravel to silty, coarse sand overlain by zones of fine to medium sand and silty sand. The deposits show the effects of changing depositional environments with lenses ranging from fine grained material deposited in quiet backwaters to coarse-grained bar deposits. The glacial till consists of silty clay with some sand, but contains sand lenses and stringers.

The distribution of soil contaminants was investigated using three methods. First, the headspace in jars containing soil samples from borings was scanned using an organic vapor meter equipped with a photoionization detector, which provided an estimate of the relative amount of volatile contaminants present. This technique was used as a basis for selecting soil samples for laboratory analysis. Second, one sample from each boring was analyzed using a gas chromatograph/mass spectrometer (GC/MS) for VOCs. Generally, this was the sample with the highest headspace reading. This provided actual contaminant identification and concentration in the soil. Third, a SOV Survey was conducted, using vapor probes and a field GC. This provided limited contaminant identification and concentration in vapors near the water table.

Soil borings were drilled at four tank locations and one background location. Boring locations are shown in Figure 6. One sample from each boring

(two from the background boring) was submitted for VOC analysis. The highest levels of contaminants were found in the vicinity of Tank Location 3N (borings B-106 to B-108) reaching 79,000 ug/kg total xylenes and 13,000 ug/kg each toluene and ethylbenzene. Tank Location 4 (boring B-101 and B-102) showed levels almost as high as Tank Location 3N, reaching 54,000 ug/kg total xylenes, 9,000 ug/kg ethylbenzene, and 7,300 ug/kg toluene. Tank Location 8S (borings B-104 to B-105) showed levels that were two orders of magnitude lower, reaching 840 ug/kg total xylenes and 68 ug/kg ethylbenzene in boring B-105. Tank Location 8N (boring B-103) showed low levels of VOCs. Boring B-109 at Tank Location 3S showed no detectable VOCs. Boring B-110, the background boring, showed up to 11 ug/kg total xylenes. Although it was not near any known tanks, boring B-110 was located in an unpaved parking lot. The low levels of xylene present are believed to be due to drips of fuel and lubricants from parked vehicles.

A SOV Survey was conducted by IT Corporation in October, 1987. The SOV Survey identified three areas of high vapor concentrations: the vicinity of Tank Location 3N, the vicinity of Tank Location 4, and the vicinity of Tank Location 8N. The results of soils analyses from borings at these locations confirmed the presence of high levels of total xylenes, ethylbenzene and toluene in the vicinity of Tank Locations 3N and 4. However, only low levels of xylene were found in the soil at Tank Location 8N (boring B-103). The combination of high concentrations in the soil gas and low concentrations in the actual soils above the water table indicate that the soil vapors at Tank Location 8N are derived from the contaminant plume in the ground water (figure 7).

VI. SUMMARY OF RISKS

An evaluation was performed using monitoring data collected prior to and during the Remedial Investigation to estimate the potential impacts to human

health and the environment. Contaminant concentrations in ground water in the study area exceed federal and state standards and guidelines for drinking water quality and human exposure. Since city ground water supply wells provide the sole source of water to Adrian's residents, concern exists for potential adverse health effects associated with the use of ground water in the vicinity of the contaminant plume.

A. Health Risk Assessment

The data collected during IT's remedial investigation describe the situation where little or no pumping is conducted by City Wells No. 3 and No. 4. The data show a plume to the south of the city wells, migrating west to north-westward. Under the non-stressed hydraulic conditions described by this investigation, the plume appears to be migrating to the west of the city wells, and the wells lie outside of the current plume configuration. However, data collected during investigations while City Wells No. 3 and No. 4 were in regular service indicate that under those conditions the plume will be drawn directly to the pumping center of the two wells. Based upon these data and the public health assessment, the use of City Wells No. 3 and No. 4 for municipal water supply without treatment could expose people using the water to contaminants.

The primary potential route of human exposure to the contaminants at the Site is through the use of contaminated ground water (i.e., ingestion, inhalation, dermal contact, and ingestion of garden vegetables contaminated via watering.) The compounds of concern selected for this evaluation were chosen based on toxicological and carcinogenic potentials, and contaminant mobility in the environment. These compounds are benzene, toluene and xylene (BTX), 1,2-dichloroethane, 1,2-dibromoethane, and lead.

The compounds of concern and their maximum concentration and water quality criteria are shown on the following table. Maximum contaminant levels

(MCLs) have been promulgated for benzene, 1,2-dichloroethane and lead. The MCL for both organics is 5 ug/l. The MCL for lead is 50 ug/l. In addition to MCLs, EPA has published MCL goals (MCLGs) for benzene and 1,2-dichloroethane. The MCLG for both benzene and 1,2-dichloroethane is 0 ug/l. The difference between MCLs and MCLGs is that while MCLs are enforceable under the Safe Drinking Water Act, MCLGs are not, but remain a goal. In 1989, EPA published proposed MCLs (PMCLs) and MCLGs (PMCLGs) for 38 drinking water contaminants. As listed in the following table, PMCLGs have been published for toluene, xylene and lead. The PMCLG for toluene is 2,000 ug/l, for xylene is 10,000 ug/l and for lead is 0 ug/l. MCLs and MCLGs for benzene and 1,2-dichloroethene have been exceeded at the Site. MCLs reflect best available technology (BAT) requirements for public drinking water supplies.

The MDH has established Recommended Allowable Limits (RALs) for all the compounds of concern. As shown on the following table, the RALs for all six compounds of concern have been exceeded. RALs have been developed from two sources: RALs for noncarcinogens are taken from health advisories published by the EPA Office of Drinking Water, and RALs for carcinogens are derived from data published by the EPA Carcinogen Assessment Group. RALs for carcinogens reflect an estimated lifetime excess cancer of 1 in 100,000. The RAL exceedence by maximum benzene, 1,2-dibromoethane and 1,2-dichloroethane concentrations indicate a lifetime incremental cancer risk greater than 1 in 100,000 if the maximum contaminant levels in ground water were ingested at an average of two liters of water per day for 70 years.

The following table also lists ambient water quality criteria (AWQC) for the Site. Benzene, 1,2-dichloroethane, toluene and lead levels in ground water exceed AWQC. (A summary of all organic compounds found in ground water at the Site is illustrated in Figure 8).

WATER QUALITY CRITERIA SUMMARY[1]

COMPOUNDS	MAXIMUM CONCENTRATION at SITE (ug/l)	ARARs MCLs (ug/l)	OTHER CRITERIA MCLGs (ug/l)	PMCLS (ug/l)	PMCLGs (ug/l)	RALs[2] (ug/l)	AWQC (ug/l)
Benzene	33000	5[3]	0[3]	--[4]	--	7	0.67
1,2-Dichloroethane	1400	5[3]	0[3]	--	--	3.8	0.94
1,2-Dibromoethane	700	--	--	.05	0	0.005	--
Toluene	50000	--	--	2,000	2,000	2420	15000
Xylene	20000	--	--	10,000	10,000	400	--
Lead	525	50	--	5	0	20	50

Notes:
(1) Data from U.S. EPA except as noted.
(2) Minnesota Department of Health, 1988.
(3) 1986 Amendments to the Safe Water Drinking Act
(4) --indicates no data

Key:
ARARs -- Applicable or Relevant and Appropriate Regulatory Requirements
MCLs -- Maximum Contaminant Levels
MCLGs -- Maximum Contaminant Level Goals
PMCLs -- Proposed Maximum Contaminant Levels
PMCLGs -- Proposed Maximum Contaminant Level Goals
RALS -- Recommended Allowable Limits
AWQC -- Ambient Water Quality Criteria

In summary, contaminant concentrations in ground water in the study area exceed federal and state standards and guidelines for drinking water quality and surface water quality. Since city ground water supply wells provide the sole source of drinking water to Adrian's residents, concern exists for potential adverse health effects associated with the use of ground water in the vicinity of the contaminant plume.

B. Environmental Assessment

The channel aquifer is an important natural resource, being the only reliable aquifer for large water supplies such as municipal systems. A body of

contaminated ground water exists in the aquifer, as discussed in Section V of this Summary of Remedial Alternative Selection.

Ground water discharges to Kanaranzi Creek as base flow. Analyses of surface water from the creek during a period when base flow was the primary source of flow in the creek indicates that at this time the ground water contaminant plume has no discernible effects on the quality of the surface water. During other periods of the year, increased flows due to surface run-off will reduce the effects of contaminants in the base flow.

Contaminated soils exist in the subsurface. There is no pathway for direct contact or ingestion of the contaminated soils, but the soils act as a source of contamination to the ground water. Thus, they affect the environment through the ground water pathway.

No flora or fauna populations appear to be affected by the contaminant plume.

VII. DOCUMENTATION OF SIGNIFICANT CHANGES

No changes in the selected remedy have been made since the release of the Fact Sheet/Proposed Plan.

VIII. STATUTORY DETERMINATION

Pursuant to MERLA and Section 101 of CERCLA, as amended by SARA, U.S. EPA and MPCA do not have the authority to address the Site using Superfund Resources. The UST program established in Subtitle I of the Resources Conservation and Recovery Act, as amended by the Hazardous and Solid Waste Amendments and as amended by SARA, is the regulatory authority with jurisdiction over cleanup of releases of petroleum from leaking underground storage tanks. The Adrian Municipal Well Field Site has been referred to the UST Program for further action deemed appropriate. Minn. Stat. ch. 115c (1988) provides authority for a state underground storage tank program to deal with the Site.

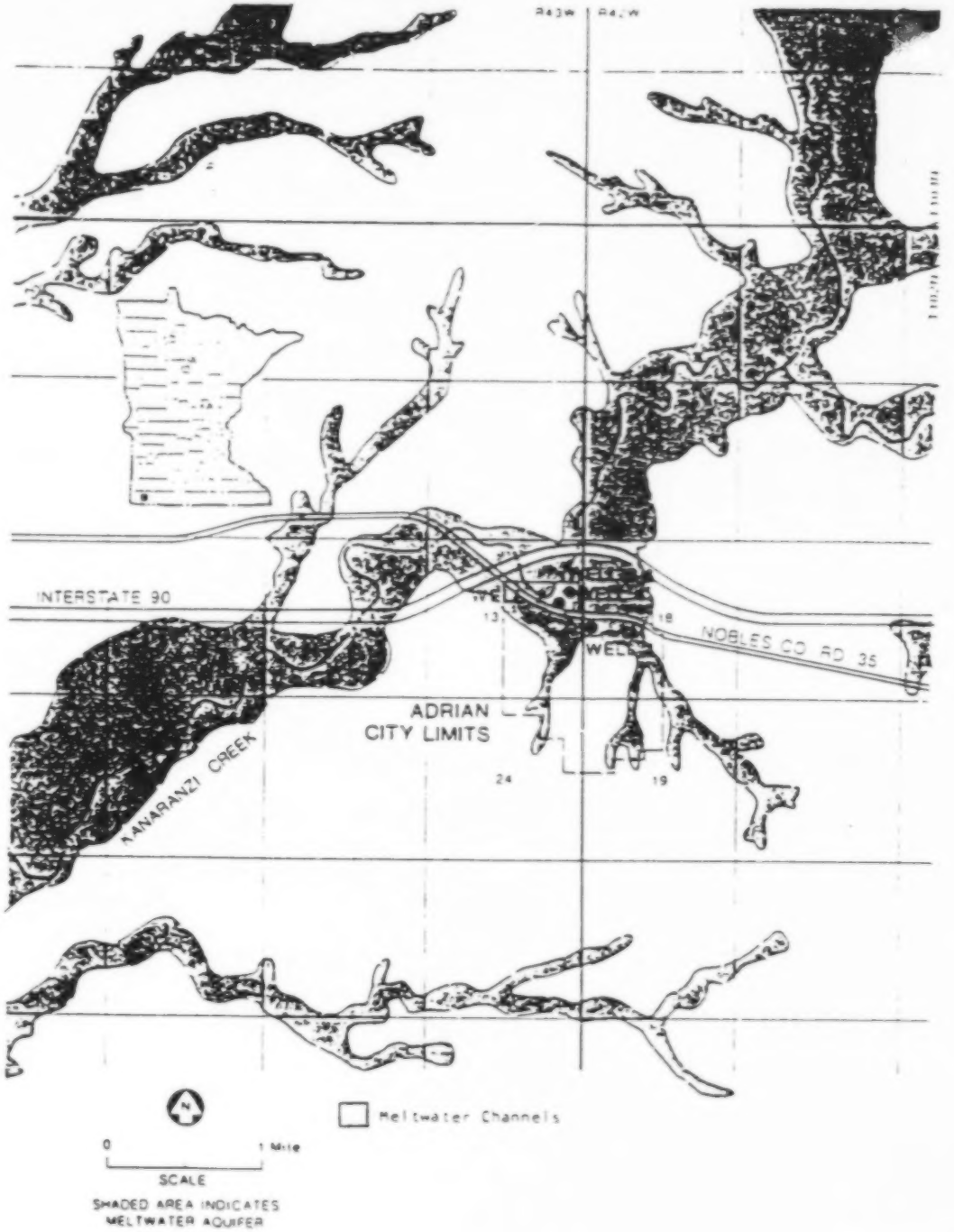
The "no further action" decision does not constitute a finding that the Site is protective of human health and the environment.

IX. SCHEDULE

The EPA Office of Superfund will formally transfer the Site to the EPA UST program. That transfer is expected to occur by the end of September 1989. After the formal transfer, EPA's UST Office will notify the MPCA's Division of Hazardous Waste (Tanks and Spills Section), which will then take responsibility as the lead agency to perform the cleanup.

X. DOCUMENTS REVIEWED

Information for this Record of Decision was obtained from the Malcolm Pirnie, Incorporated 1989 Remedial Investigation report for the Site, the Barr Engineering Company's 1984 Hydrogeologic Remedial Investigation and 1985 Remedial Investigation Supplement, and the MDH's August 1989 Health Assessment for the Site. This decision was based on a review of information listed in the Administrative Record Index attached.



REFERENCE: BARR ENGINEERING CO., 1984

MALCOLM PIRNIE

LOCATION OF ADRIAN AND MELTWATER CHANNELS

MALCOLM PIRNIE, INC

FIGURE 1

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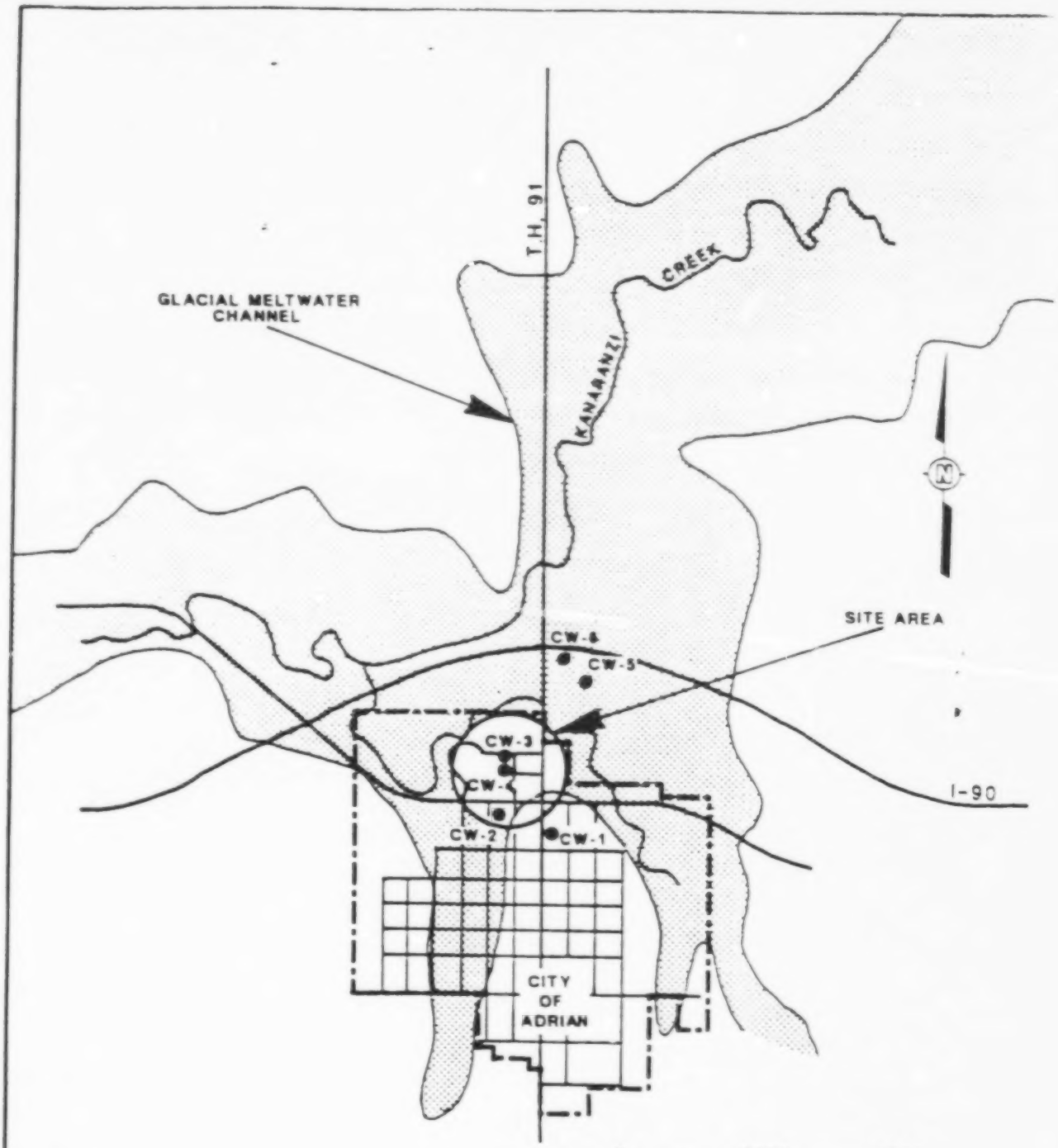
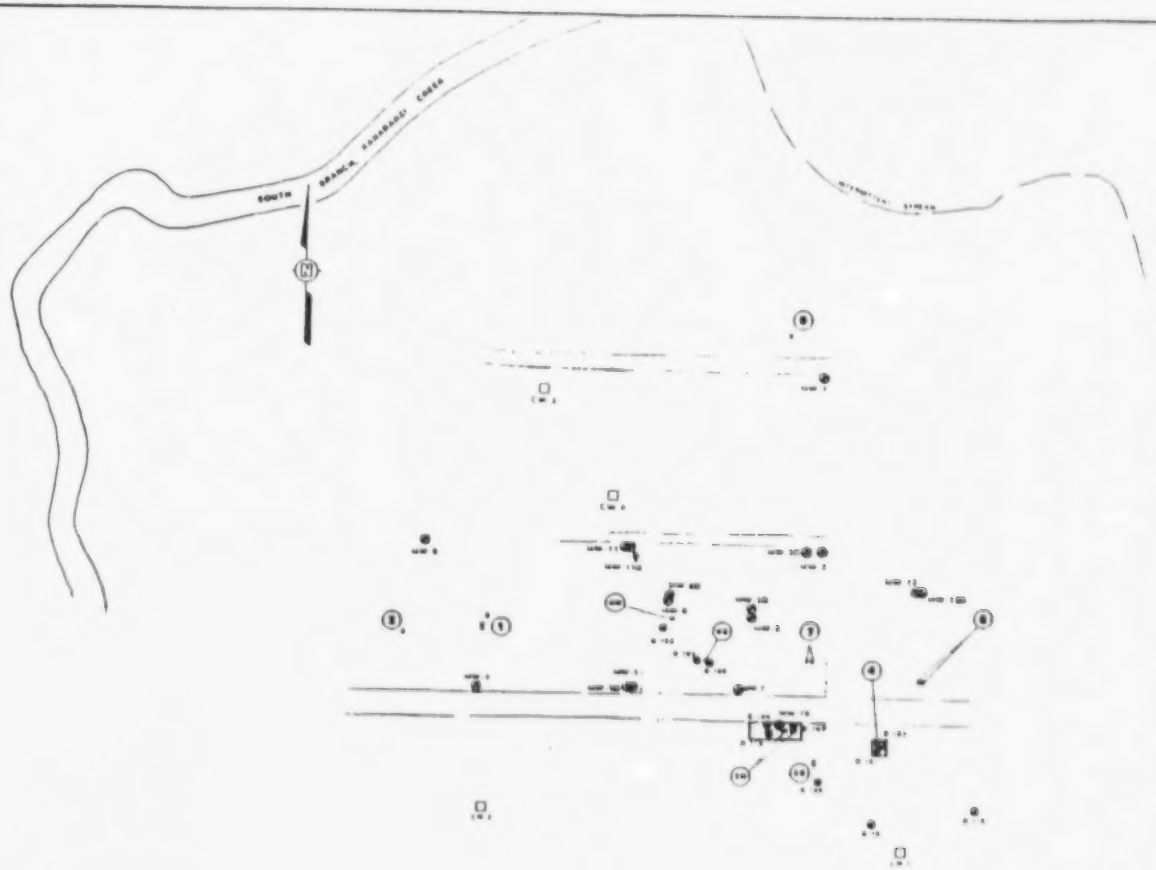


MALCOLM PIRNIE

SITE LOCATION

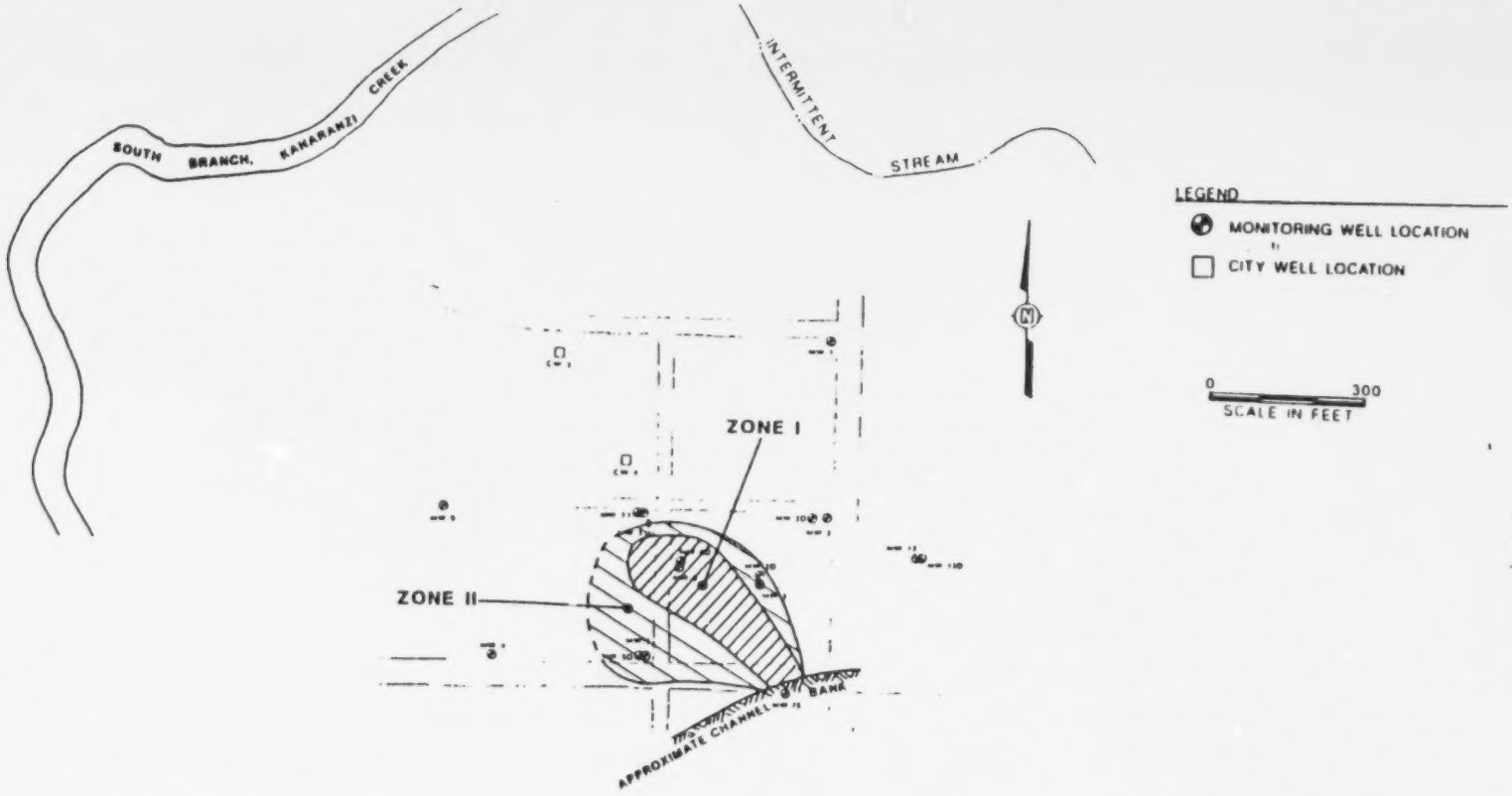
FIGURE 2



MALCOLM PIRNIE

TANK LOCATIONS AND SUSPECTED EXTENT OF CONTAMINATED SOIL

FIGURE 3

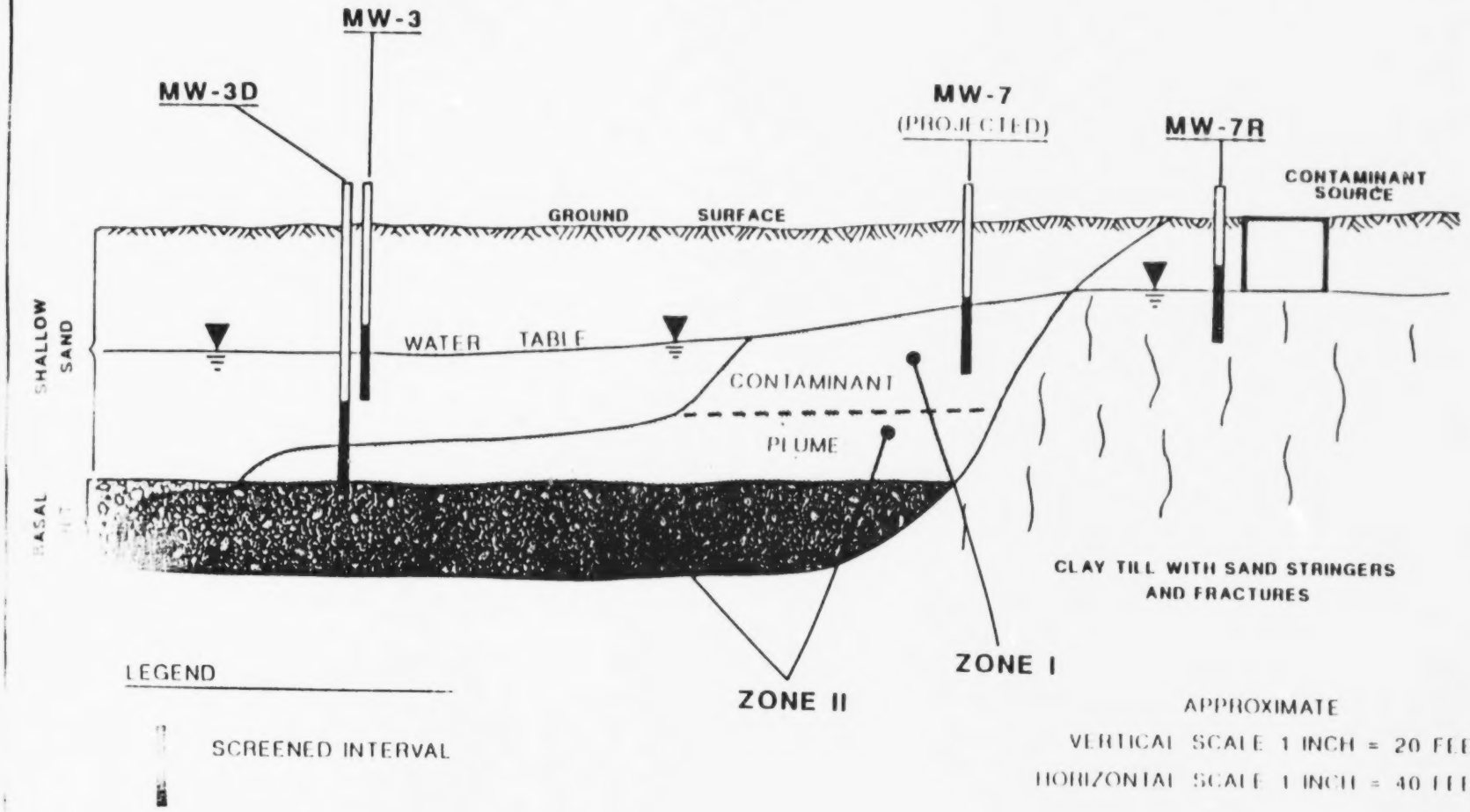


MALCOLM PIRNIE

CONCEPTUAL PLUME CONFIGURATION
Non-Pumping Conditions

MALCOLM PIRNIE INC.

FIGURE 4

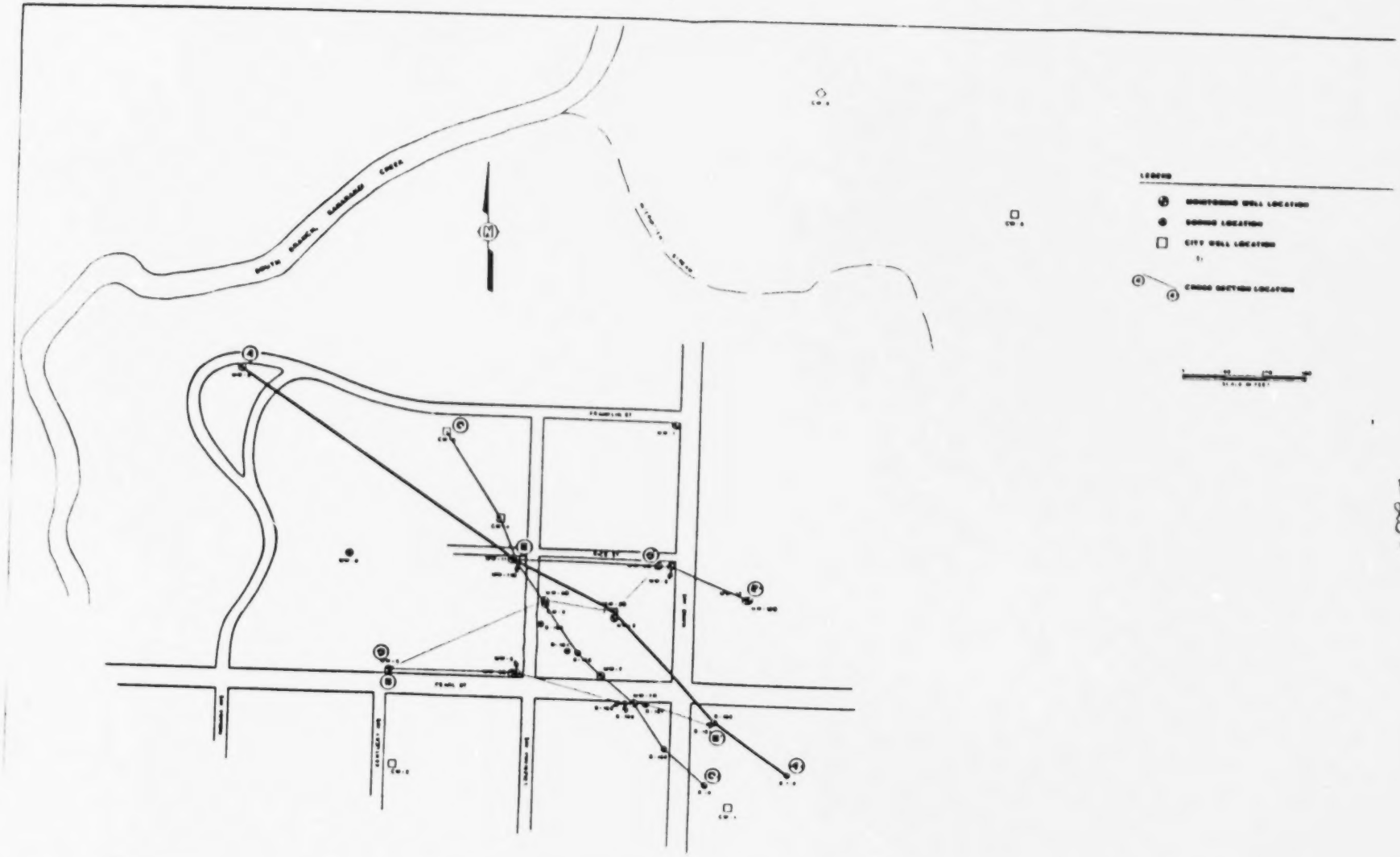


MALCOLM PIRNIE

SCHEMATIC CROSS SECTION OF CONTAMINANT PLUME

MALCOLM PIRNIE, INC

FIGURE 5



MALCOLM PIRNIE

BORING AND WELL LOCATIONS

FIGURE 6

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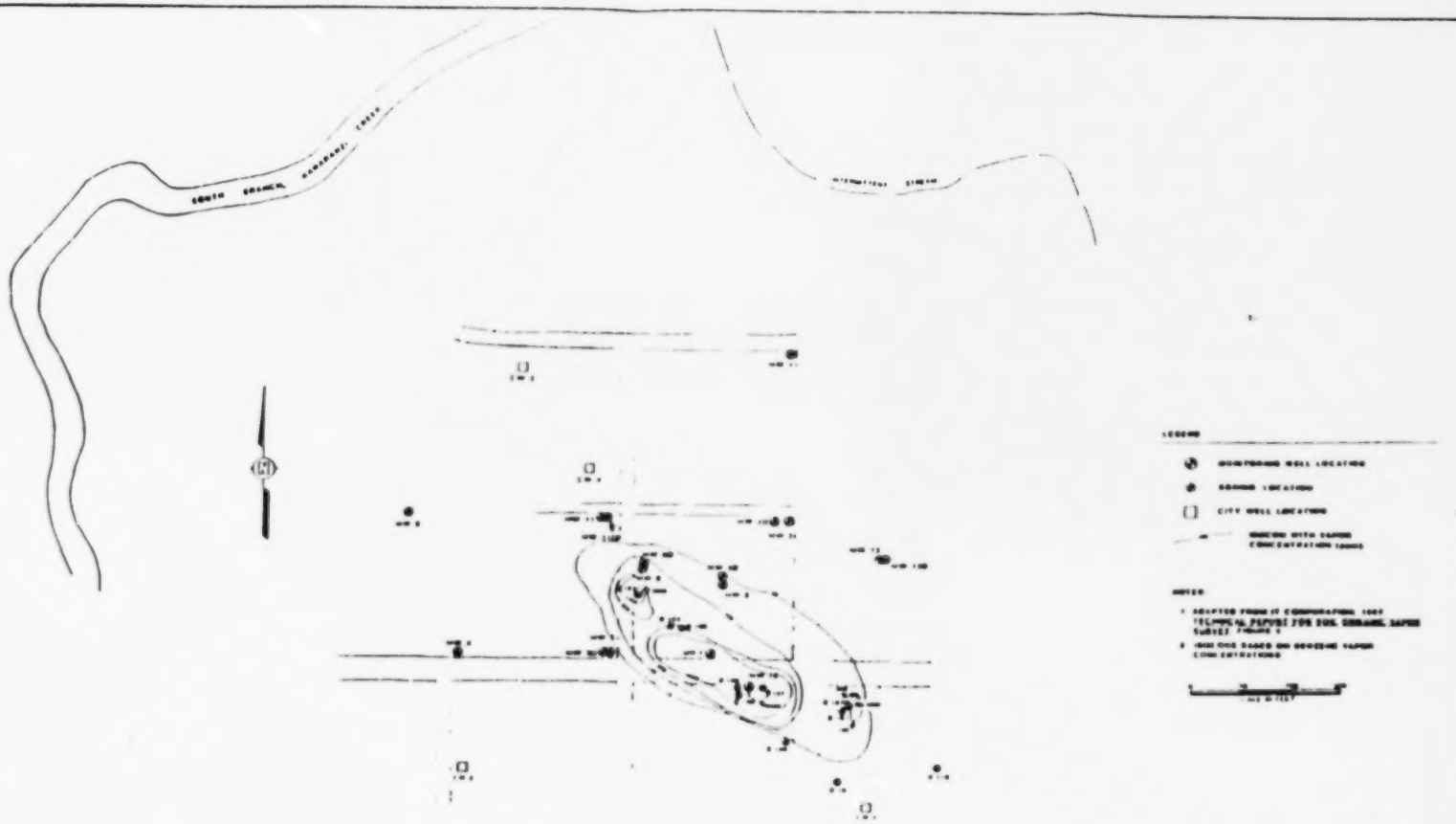
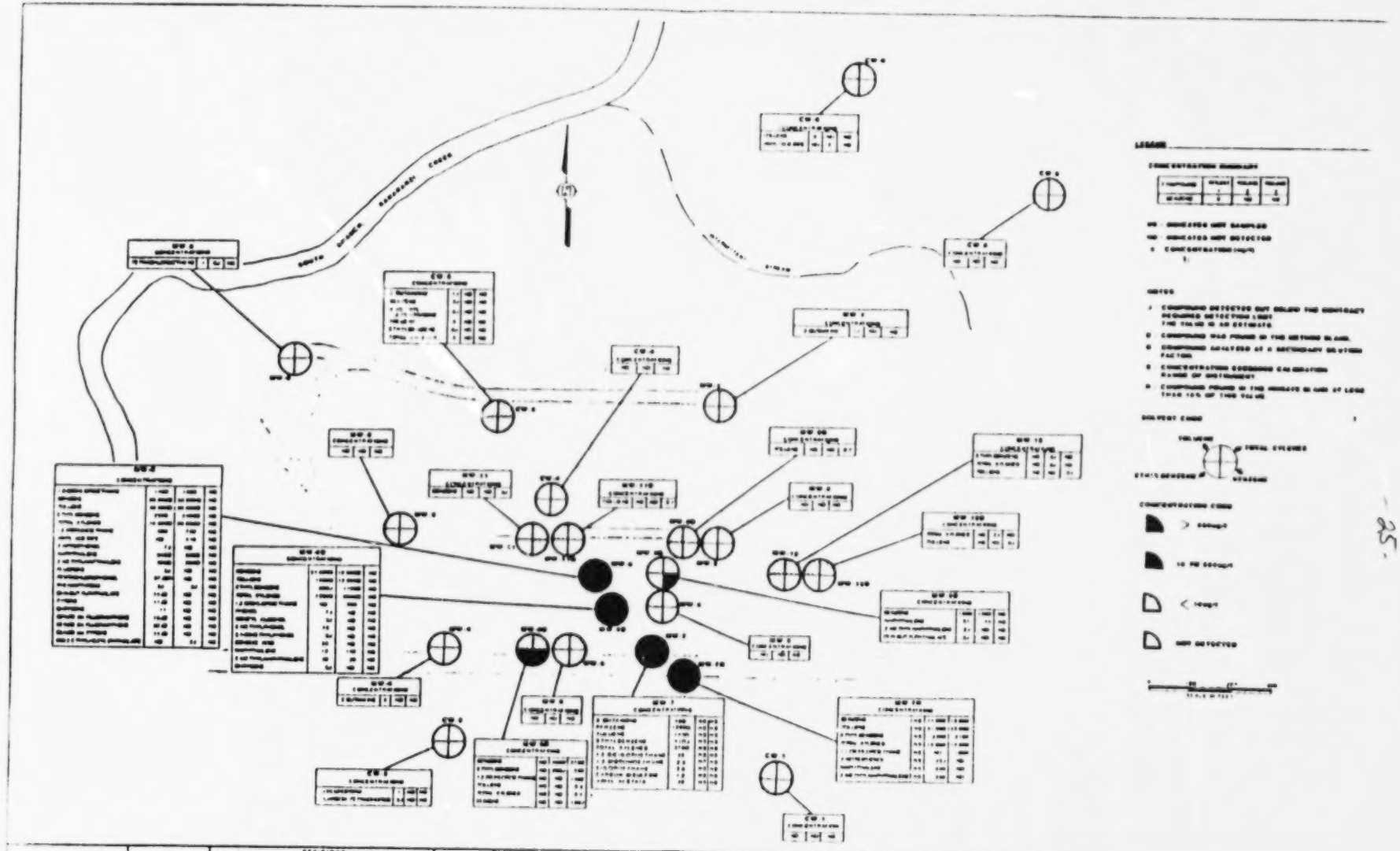


MALCOLM PIRNIE

SOIL ORGANIC VAPOR CONCENTRATIONS

FIGURE 7



MALCOLM PIRNIE

SUMMARY OF ORGANIC COMPOUNDS IN GROUND WATER

FIGURE 3

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Responsiveness Summary

Adrian Superfund Project
Adrian, Minnesota

Minnesota Pollution Control Agency

This community responsiveness summary has been developed to document community involvement and concerns during the remedial investigation phase of the project, and to respond to comments received during the public comment period. Also included as an attachment is a summary of the community relations activities conducted by the Minnesota Pollution Control Agency (MPCA) since contaminants were discovered in two city wells in 1984.

OVERVIEW

Based on the findings of the remedial investigation, the MPCA and the U.S. Environmental Protection Agency's (U.S. EPA's) Superfund Office have recommended that the Adrian project be transferred for cleanup to the U.S. EPA's Underground Storage Tank (UST) program, administered by the MPCA. This proposal was announced to the community through an advertisement in the local newspaper and a news release. A public comment period on the proposal was provided, and the MPCA received comments from the city of Adrian during the comment period.

This responsiveness summary contains the following sections:

- Background Information on the Community's Involvement
- Summary of Comments Received and the MPCA's Response
- Attachment: Community Relations Activities in Adrian

BACKGROUND INFORMATION ON THE COMMUNITY'S INVOLVEMENT

Since the beginning of the Superfund remedial investigation in Adrian, the level of interest on the part of the general public has been low. City officials and tank owners, however, have expressed continued interest throughout the process.

Under a cooperative agreement with the EPA, the MPCA conducted the community relations program for the project. The MPCA provided information to the community on the plans for the remedial investigation through a news release, fact sheet and a public meeting. Attendance at the meeting was limited to city officials and tank owners. Throughout the two-year remedial investigation, MPCA staff provided periodic verbal updates on the investigation's progress to city officials.

At the completion of the investigation, the MPCA announced a 30-day public comment period (July 26 through August 25, 1989) on its proposal to transfer the project to UST. This announcement was made through an advertisement in the local newspaper and news articles published in both the weekly paper and the daily newspaper serving the area. Copies of the proposed plan were mailed to city officials, local elected representatives and underground storage tank owners and operators, and a copy was made available at the library. In addition, MPCA staff contacted city officials and tank owners to discuss the proposal.

SUMMARY OF COMMENTS RECEIVED AND THE MPCA'S RESPONSE

The city of Adrian provided comments on the proposed plan during the comment period. By letter, the city indicated they understood the reasons for transferring the project to UST. The city requested a meeting with representatives of the MPCA's UST program in the near future to discuss UST activities related to the site.

The MPCA has appreciated the city's interest and cooperation throughout the Superfund project. MPCA staff are currently working to schedule a meeting between the city and UST program staff to discuss future cleanup actions.

In addition to the city's comment, U.S. EPA noted that Table 24 in the Remedial Investigation Report needed correction, based on new information. The table lists guidelines for contaminant levels in surface and ground water -- Proposed Maximum Contaminant Level (PMCL), Proposed Maximum Contaminant Level Goal (PMCLG) and Ambient Water Quality Criteria (AWQC).

The MPCA made the suggested changes to the PMCL and PMCLG in Table 24, using the most recent values. The corrected table is as follows:

COMPOUND	PMCLG	PMCL	AWQC
Benzene	--	--	.67
EDC	--	--	.94
EDB	0	.05	--
Toluene	2,000	2,000	15,000
Xylene	10,000	10,000	--
Lead	0	5	50

All values in micrograms per liter (ug/l)

Attachment

COMMUNITY RELATIONS ACTIVITIES CONDUCTED AT THE ADRIAN SUPERFUND SITE

The MPCA has conducted the following community relations activities for the Adrian Superfund project:

January 20, 1984	-	Letter mailed to Adrian households explaining municipal well contamination
June 12, 1984	-	Public meeting held in Adrian to provide updated information on activities related to the well contamination
April 1986	-	Community relations interviews conducted and information repository established at Adrian Public Library
Summer 1986	-	Community relations plan written and approved by EPA
September 2, 1987	-	News release announcing meeting in Adrian to discuss beginning of federal Superfund project field work
September 15, 1987	-	Meeting held in Adrian; fact sheet provided to residents and city officials; project work plan placed in information repository
July 26, 1989	-	News release announcing completion of the remedial investigation, proposal to transfer site, and public comment period; ad published in Nobles County Review announcing the same information; remedial investigation and proposed plan placed in information repository
August 25, 1989	-	Close of public comment period

Minnesota Pollution Control Agency

Proposed Plan/Fact Sheet for the

Adrian Superfund Project

Nobles County

Introduction

This Proposed Plan provides information on a recommendation by the Minnesota Pollution Control Agency (MPCA) and the U.S. Environmental Protection Agency's (EPA) Office of Superfund to transfer the Adrian Superfund site to the Underground Storage Tank program. The recommendation is based on the findings of a Superfund remedial investigation conducted by the MPCA, as the lead agency, with EPA, the support agency.

Section 117(a) of the federal Superfund law requires that a plan explaining proposed actions at Superfund sites be developed and presented for public review and comment. The public comment period, discussed below, provides an opportunity for the public to comment on this plan.

What is the history of the project?

In early 1984, the MPCA detected contamination in two of Adrian's municipal wells. The contaminants detected, including benzene and 1,2-dichloroethane, are chemicals typically associated with gasoline leaks or spills. Following discovery of the contaminants, the city stopped using the two wells, and used Small Cities Development grant funding to install two new wells in an area not affected by the contamination.

A preliminary MPCA investigation of the contamination detected petroleum fuels in ground water near the locations of many underground fuel storage tanks. Since that time, all inactive tanks identified have been removed.

In the fall of 1987, using federal Superfund money, the MPCA began a more extensive remedial investigation of soil and ground water contamination in Adrian.

This investigation, completed this summer, was designed to assess the extent of the soil and ground water contamination, identify contaminant sources and define the characteristics of the contaminated ground water aquifer.

What did the investigation find?

The remedial investigation identified a contaminated ground water plume — the pathway contamination takes as it moves underground — generally moving to the west/northwest.

WE WANT YOUR OPINION

The MPCA and EPA are asking for public comments on the proposed project transfer between July 26 and August 25, 1989. Comments may be addressed to:

Elizabeth Gelbmann
Public Information Office
MPCA
520 Lafayette Road
St. Paul, Minnesota 55155
612/296-7792 or toll-free
1-800-652-9747

Printed on recycled paper

The agencies are proposing this transfer because the federal Superfund law has a petroleum exclusion — that is, the law does not allow use of Superfund money or authority to clean up sites where the contamination is from petroleum products. Because the remedial investigation verified that the source of the contamination is limited to petroleum fuels and related to underground storage tanks, Superfund is not the appropriate program for continued work at the site.

Specifically, section 101 of CERCLA, as amended by SARA -- the federal Superfund laws -- provides that the Superfund program does not have the authority to address cleanup of petroleum spills from underground storage tanks. The UST program (established in Subtitle I of the Resource Conservation and Recovery Act, as amended by SARA), is the regulatory authority with jurisdiction over the cleanup of the Adrian site. The proposed decision to transfer the site does not constitue a finding that the site is protective of human health and the environment.

What will happen under the UST program?

Since the Superfund investigation identified the source, under the UST program the MPCA would request that the responsible parties — the owners and operators of the tanks — proceed with cleaning up the contaminated soil and ground water.

Minnesota's UST law allows for reimbursement of a major portion of the cleanup costs, if the responsible parties comply with requirements in the storage tank laws. The law provides for reimbursements to responsible parties of up to 90 percent of cleanup costs, up to $250,000. If a responsible party is unwilling or unable to conduct the needed cleanup, federal Leaking Underground Storage Tank Trust funds can be used to clean up the problem. When these funds are used, the MPCA has the authority to recover its costs through legal action.

Before the cleanup would begin, responsible parties will first be requested to prepare a cleanup plan for MPCA approval. At many UST sites, cleanups involve removal of leaking tanks, excavation of contaminated soil to prevent continuing release of chemicals to the ground water, and pumping out contaminated ground water for treatment to remove the contaminants.

When will this take place?

The MPCA and EPA's Office of Superfund are holding a 30-day public comment period on the proposal to transfer the site to the UST program. Following the comment period, the agencies will determine whether to transfer the site, and will notify the community of the decision.

More questions?

The complete report of the investigation is available for review at the Adrian Public Library. Persons with questions may call Elizabeth Gelbmann, MPCA Information Officer, toll-free at 1-800-652-9747.

Comments on the plan for transferring the site to the UST program must be postmarked by August 25, 1989, and may be addressed to:

Elizabeth Gelbmann
Public Information Office
MPCA
520 Lafayette Road
St. Paul, Minnesota 55155

July 1989

ADMINISTRATIVE RECORD INDEX FOR THE ADRIAN
MUNICIPAL WELL FIELD SITE

* Comprehensive Environmental Response, Compensation and Liability Act (copy of law)

* Superfund Amendments and Reauthorization Act (copy of law)

* Adrian Superfund Project, Remedial Investigation and Feasibility Study Work Plan

* Adrian Superfund Project, Community Relations Plan

* Adrian Superfund Project (fact sheet)

* Adrian Superfund Project Remedial Investigation, Final Report

* Proposed Plan for the Adrian Superfund Project

* Site Investigation Report for the Adrian Well Field Site, U.S. EPA, March 1, 1984

* Preliminary Assessment Report for the Adrian Well Field Site, U.S. EPA, February 1, 1985

* City of Adrian Hydrogeologic Remedial Investigation, Barr Engineering Company, 1984

* Feasibility Study, Temporary Water Supply, Adrian, Minnesota, Barr Engineering Company, March, 1984

* City of Adrian Hydrogeologic Remedial Investigation Supplement, Barr Engineering Company, 1985

* Public Notice for the Adrian Well Field Site published in the July 26th, 1989, issue of the Nobles County Review newspaper

* News release for the Adrian Well Field Site published in the Worthington Globe July 21, 1989

* Letter from the MPCA to the Adrian Public Library transmitting the Proposed Plan, July 21, 1989

* Letter from the city of Adrian to the MPCA acknowledging the reasons for the transfer of the Site to the UST program, August 22, 1989

* Health Assessment for the Adrian Municipal Well Field, Adrian, Minnesota, Minnesota Department of Health, August 1989

* Memorandum from the U.S. EPA Waste Management Division Director: CERCLA, RCRA, Water, and Air Overlaps with the UST/LUST Programs, March 29, 1988

* Interim Final Guidance on Preparing Superfund Decision Documents, OSWER Directive 9355.3-02, U.S. EPA, June, 1989

* Record of Decision for the Adrian Well Field Site